SEQUENCE LISTING

<110> Patience, Clive
Oldmixon, Beth
Ericsson, Thomas

<120> Molecular Sequence of Pig Endogenous Retrovirus Receptor and Methods of Use

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<150> US/60/285,103
<151> 2001-04-20

<160> 23

<170> PatentIn version 3.0

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Leu Thr Leu Ser Ile Thr Pro Gln Val Asn Gly Lys Arg Leu Val Asn
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Ser Pro Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Leu Thr Asp
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Ser Gly Thr Gly Ile Asn Ile Asn Ser Thr Gln Gly Glu Ala Pro Leu
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Gly Thr Trp Trp Pro Glu Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
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Phe Tyr Val Cys Pro Gly Pro Pro Asn Asn Glu Glu Tyr Cys Gly Asn
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Leu Thr Leu Ser Ile Thr Pro Gln Val Asn Gly Lys Arg Leu Val Asp
        35                  40                  45

Ser Pro Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Leu Thr Asp
    50                  55                  60

Ser Gly Thr Gly Ile Asn Ile Asn Ser Thr Gln Gly Glu Ala Pro Leu
65                  70                  75                  80

Gly Thr Trp Trp Pro Glu Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
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Gly Leu Asn Asp Gln Ala Thr Pro Pro Asp Val Leu Arg Ala Tyr Gly
            100                 105                 110

Phe Tyr Val Cys Pro Gly Pro Pro Asn Asn Glu Glu Tyr Cys Gly Asn
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Pro Gln Asp Phe Phe Cys Lys Gln Trp Ser Cys Val Thr Ser Asn Asp
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Gly Asn Trp Lys Trp Pro Val Ser Gln Gln Asp Arg Val Ser Tyr Ser
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Arg Trp Lys Asp Trp Gln Gln Arg Val Gln Lys Asp Val Arg Asn Lys
            180                 185                 190

Gln Ile Ser Cys His Ser Leu Asp Leu Asp Tyr Leu Lys Ile Ser Phe
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Thr Glu Lys Gly Lys Gln Glu Asn Ile Leu Lys Trp Val Asn Gly Met
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Ser Trp Gly Met Val Tyr Tyr Gly Gly Ser Gly Lys Gln Pro Gly Ser
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Ile Leu Thr Ile Arg Leu Lys Ile Asn Gln Leu Glu Pro Pro Met Ala
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Trp Leu Cys Leu Ala Leu Gly Pro Pro Tyr Tyr Glu Gly Met Ala Arg
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Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu Val Phe Gly Lys Gly Thr
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Cys Ile Gly Lys Val Pro Pro Ser His Gln His Leu Cys Asn His Thr
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Glu Ala Phe Asn Arg Thr Ser Glu Ser Gln Tyr Leu Val Pro Gly Tyr
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Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu Thr Pro Cys Val Ser Thr
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Leu Val Phe Asn Gln Thr Lys Asp Phe Cys Ile Met Val Gln Ile Val
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Pro Arg Val Tyr Tyr Tyr Pro Glu Lys Ala Ile Leu Asp Glu Tyr Asp
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Tyr Arg Asn His Arg Gln Lys Arg Glu Pro Ile Ser Leu Thr Leu Ala
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Val Met Leu Gly Leu Gly Val Ala Ala Gly Val Gly Thr Gly Thr Ala
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Ala Leu Val Thr Gly Pro Gln Gln Leu Glu Thr Gly Leu Ser Asn Leu
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His Arg Ile Val Thr Glu Asp Leu Gln Ala Leu Glu Lys Ser Val Ser
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Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser Glu Val Val Leu Gln Asn
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Arg Arg Gly Leu Asp Leu Leu Phe Leu Lys Glu Gly Gly Leu Cys Val
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Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val Asp His Ser Gly Ala Ile
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Glu Lys Glu Thr Thr Gln Gly Trp Phe Glu Gly Trp Phe Asn Arg Ser
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Pro Trp Leu Ala Thr Leu Leu Ser Ala Leu Thr Gly Pro Leu Ile Val
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Leu Leu Leu Leu Leu Thr Val Gly Pro Cys Ile Ile Asn Lys Leu Ile
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Val Thr Leu Trp Arg Arg Leu Ala Pro Gly Lys Asp Glu Gln Val Pro
65                  70                  75                  80

Ile Arg Val Val Gln Val Leu Gly Met Val Gly Thr Ala Leu Leu Ala
                85                  90                  95

Ser Leu Trp His His Val Ala Pro Val Ala Gly Gln Leu His Ser Val
            100                 105                 110

Ala Phe Leu Ala Leu Ala Phe Val Leu Ala Leu Ala Cys Cys Ala Ser
        115                 120                 125

Asn Val Thr Phe Leu Pro Phe Leu Ser His Leu Pro Pro Arg Phe Leu
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Arg Ser Phe Phe Leu Gly Gln Gly Leu Ser Ala Leu Leu Pro Cys Val
145                 150                 155                 160

Leu Ala Leu Val Gln Gly Val Gly Arg Leu Glu Cys Pro Pro Ala Pro
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Ile Asn Gly Thr Pro Gly Pro Pro Leu Asp Phe Leu Glu Arg Phe Pro
            180                 185                 190

Ala Ser Thr Phe Phe Trp Ala Leu Thr Ala Leu Leu Val Ala Ser Ala
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Ala Ala Phe Gln Gly Leu Leu Leu Leu Leu Pro Pro Pro Pro Ser Val
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Pro Thr Gly Glu Leu Gly Ser Gly Leu Gln Val Gly Ala Pro Gly Ala
225                 230                 235                 240

Glu Glu Glu Val Glu Glu Ser Ser Pro Leu Gln Glu Pro Pro Ser Gln
                245                 250                 255

Ala Ala Gly Thr Thr Pro Gly Pro Asp Pro Lys Ala Tyr Gln Leu Leu
            260                 265                 270

Ser Ala Arg Ser Ala Cys Leu Leu Gly Leu Leu Ala Ala Thr Asn Ala
        275                 280                 285

Leu Thr Asn Gly Val Leu Pro Ala Val Gln Ser Phe Ser Cys Leu Pro
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Tyr Gly Arg Leu Ala Tyr His Leu Ala Val Val Leu Gly Ser Ala Ala
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Asn Pro Leu Ala Cys Phe Leu Ala Met Gly Val Leu Cys Arg Ser Leu
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Ala Gly Leu Gly Gly Leu Ser Leu Leu Gly Val Phe Cys Gly Gly Tyr
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Leu Met Ala Leu Ala Val Leu Ser Pro Cys Pro Pro Leu Val Gly Thr
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Gly Arg Pro Ala Leu Leu Ala Ala Gly Val Ala Ile Gln Val Gly Ser
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gcattgctgg cagccggcgt ggccatccag gtgggctctc tgctcggcgc tgttgctatg 1380
ttcccccccga ccagcatcta tcacgtgttc cacagcagaa aggactgtgc agacccctgt 1440
gactcctgag cctgggcagg tggggacccc gctccccaac acctgtcttt ccctcaatgc 1500
tgccaccatg cctgagtgcc tgcagcccag gaggcccgca caccggtaca ctcgtggaca 1560
cctacacact ccataggaga tcctggcttt ccagggtggg caagggcaag gagcaggctt 1620
ggagccaggg accagtgggg gctgtagggt aagcccctga gcctgggacc tacatgtggt 1680
ttgcgtaata aaacatttat atttaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1732

<210> 12
<211> 445
<212> PRT

<213> Homo sapiens

<400> 12

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Met Ala Ala Pro Thr Pro Ala Arg Pro Val Leu Thr His Leu Leu Val
1               5                  10                  15

Ala Leu Phe Gly Met Gly Ser Trp Ala Ala Val Asn Gly Ile Trp Val
            20                  25                  30

Glu Leu Pro Val Val Val Lys Glu Leu Pro Glu Gly Trp Ser Leu Pro
        35                  40                  45

Ser Tyr Val Ser Val Leu Val Ala Leu Gly Asn Leu Gly Leu Leu Val
    50                  55                  60

Val Thr Leu Trp Arg Arg Leu Ala Pro Gly Lys Asp Glu Gln Val Pro
65                  70                  75                  80

Ile Arg Val Val Gln Val Leu Gly Met Val Gly Thr Ala Leu Leu Ala
                85                  90                  95

Ser Leu Trp His His Val Ala Pro Val Ala Gly Gln Leu His Ser Val
            100                 105                 110

Ala Phe Leu Ala Leu Ala Phe Val Leu Ala Leu Ala Cys Cys Ala Ser
        115                 120                 125

Asn Val Thr Phe Leu Pro Phe Leu Ser His Leu Pro Pro Arg Phe Leu
    130                 135                 140

Arg Ser Phe Phe Leu Gly Gln Gly Leu Ser Ala Leu Leu Pro Cys Val
145                 150                 155                 160

Leu Ala Leu Val Gln Gly Val Gly Arg Leu Glu Cys Pro Pro Ala Pro
                165                 170                 175

Ile Asn Gly Thr Pro Gly Pro Pro Leu Asp Phe Leu Glu Arg Phe Pro
            180                 185                 190

Ala Ser Thr Phe Phe Trp Ala Leu Thr Ala Leu Leu Val Ala Ser Ala
        195                 200                 205

Ala Ala Phe Gln Gly Leu Leu Leu Leu Leu Pro Pro Pro Pro Ser Val
    210                 215                 220

Pro Thr Gly Glu Leu Gly Ser Gly Leu Gln Val Gly Ala Pro Gly Ala
225                 230                 235                 240

Glu Glu Glu Val Glu Glu Ser Ser Pro Leu Gln Glu Pro Pro Ser Gln
                245                 250                 255

Ala Ala Gly Thr Thr Pro Gly Pro Asp Pro Lys Ala Tyr Gln Leu Leu
            260                 265                 270

Ser Ala Arg Ser Ala Cys Leu Leu Gly Leu Leu Ala Ala Thr Asn Ala
        275                 280                 285

Leu Thr Asn Gly Val Leu Pro Ala Val Gln Ser Phe Ser Cys Leu Pro
```

```
    290                 295                 300

Tyr Gly Arg Leu Ala Tyr His Leu Ala Val Val Leu Gly Ser Ala Ala
305                 310                 315                 320

Asn Pro Leu Ala Cys Phe Leu Ala Met Gly Val Leu Cys Arg Ser Leu
                325                 330                 335

Ala Gly Leu Gly Ser Leu Ser Leu Leu Gly Val Phe Cys Gly Gly Tyr
            340                 345                 350

Leu Met Ala Leu Ala Val Leu Ser Pro Cys Pro Pro Leu Val Gly Thr
        355                 360                 365

Ser Ala Gly Val Val Leu Val Val Leu Ser Trp Val Leu Cys Leu Gly
    370                 375                 380

Val Phe Ser Tyr Val Lys Val Ala Ala Ser Ser Leu Leu His Gly Gly
385                 390                 395                 400

Gly Arg Pro Ala Leu Leu Ala Ala Gly Val Ala Ile Gln Val Gly Ser
                405                 410                 415

Leu Leu Gly Ala Val Ala Met Phe Pro Pro Thr Ser Ile Tyr His Val
            420                 425                 430

Phe His Ser Arg Lys Asp Cys Ala Asp Pro Cys Asp Ser
        435                 440                 445
```

<210> 13
<211> 1473
<212> DNA
<213> Homo sapiens

<400> 13

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aaagcatctt tggacctacc tagggaagga cctgcctgtg acctttgccc tgtcctggag     60
ggtccagctt tgggctgaat ggcagcaccc acgctgggcc gtctggtgct gacccacctg    120
ctggtggccc tttttggcat gggctcctgg gctgctgtga acgggatctg ggtggagctg    180
cctgtggtgg taaaagacct tccagagggt tggagcctcc cctcatacct ctctgtggtt    240
gtggcgctgg gaaacctggg tctgctggtg gtgaccctgt ggaggcggct ggccccgggc    300
aagggcgagc aggtccccat ccaggtggta caggtgctga gtgtagtggg cacagccctg    360
ctggcccctc tgtggcacca cgtggcccca gtggcagggc agctccactc tgtggccttc    420
ctaactctgg ccttggtgtt ggcaatggcc tgttgtacct ctaatgtcac tttcctgccc    480
ttcctgagcc acctgccacc tcctttctta cggtctttct tcctgggtca gggtctcagt    540
gccctactcc cctgtgtgct ggccctagtg caaggtgtgg gccgcctcga gtgcccacca    600
gcgcccacca atggcacctc tgggcctccc ctcgacttcc ctgagcgttt tcctgccagc    660
accttcttct gggcactgac tgcccttctg gtcacttcag ctgccgcctt ccggggtctc    720
ctgttgctgt tgccatcact accctctgta accacagggg gctcagggcc tgaacttcaa    780
ctgggatccc caggagcaga ggaggaagag aaggaggaag aagaggcttt gccattgcag    840
gagccaccga gccaggcagc aggcaccatc cctggcccag accctgaggc ccatcagctg    900
ttctcagccc atggtgcctt cctgctgggc ctgatggcct tcaccagtgc cgtgaccaat    960
ggcatgctgc cttctgtgca gagcttttcc tgtttgccct atgggcgcct ggcctaccac   1020
ctggctgtgg tgctgggcag tgccgccaac ccccttgcct gcttcctggc catgggcgtg   1080
ctgtgcaggt ccctggcagg gctggttggt ctttctctgc tgggcatgct ctttggggcc   1140
tacctgatgg cactggcaat cctgagcccc tgcccacccc tggtgggcac cactgcaggg   1200
gtggtccttg tggtgctgtc gtgggtgctg tgtctgtgtg tgttctcata tgtgaaggtg   1260
gctgcaagct ccctgctgca tggtgggggt cggccggcat tgctggcagc tggtgtggcc   1320
```

```
atccaagtgg gctccctgct tggtgccggt gccatgttcc ctcccaccag catctaccac   1380
gtgtttcaaa gcagaaagga ctgtgtagac ccctgtggcc cctgagcctg ggcaggtggg   1440
gacccaactc caccccacct gtcttcatcg tga                                1473
```

<210> 14
<211> 448
<212> PRT
<213> Homo sapiens

<400> 14

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Met Ala Ala Pro Thr Leu Gly Arg Leu Val Leu Thr His Leu Leu Val
1               5                  10                  15

Ala Leu Phe Gly Met Gly Ser Trp Ala Ala Val Asn Gly Ile Trp Val
            20                  25                  30

Glu Leu Pro Val Val Val Lys Asp Leu Pro Glu Gly Trp Ser Leu Pro
        35                  40                  45

Ser Tyr Leu Ser Val Val Val Ala Leu Gly Asn Leu Gly Leu Leu Val
    50                  55                  60

Val Thr Leu Trp Arg Arg Leu Ala Pro Gly Lys Gly Glu Gln Val Pro
65                  70                  75                  80

Ile Gln Val Val Gln Val Leu Ser Val Val Gly Thr Ala Leu Leu Ala
                85                  90                  95

Pro Leu Trp His His Val Ala Pro Val Ala Gly Gln Leu His Ser Val
            100                 105                 110

Ala Phe Leu Thr Leu Ala Leu Val Leu Ala Met Ala Cys Cys Thr Ser
        115                 120                 125

Asn Val Thr Phe Leu Pro Phe Leu Ser His Leu Pro Pro Pro Phe Leu
    130                 135                 140

Arg Ser Phe Phe Leu Gly Gln Gly Leu Ser Ala Leu Leu Pro Cys Val
145                 150                 155                 160

Leu Ala Leu Val Gln Gly Val Gly Arg Leu Glu Cys Pro Pro Ala Pro
                165                 170                 175

Thr Asn Gly Thr Ser Gly Pro Pro Leu Asp Phe Pro Glu Arg Phe Pro
            180                 185                 190

Ala Ser Thr Phe Phe Trp Ala Leu Thr Ala Leu Leu Val Thr Ser Ala
        195                 200                 205

Ala Ala Phe Arg Gly Leu Leu Leu Leu Leu Pro Ser Leu Pro Ser Val
    210                 215                 220

Thr Thr Gly Gly Ser Gly Pro Glu Leu Gln Leu Gly Ser Pro Gly Ala
225                 230                 235                 240

Glu Glu Glu Glu Lys Glu Glu Glu Glu Ala Leu Pro Leu Gln Glu Pro
                245                 250                 255
```

```
Pro Ser Gln Ala Ala Gly Thr Ile Pro Gly Pro Asp Pro Glu Ala His
            260                 265                 270

Gln Leu Phe Ser Ala His Gly Ala Phe Leu Leu Gly Leu Met Ala Phe
        275                 280                 285

Thr Ser Ala Val Thr Asn Gly Met Leu Pro Ser Val Gln Ser Phe Ser
    290                 295                 300

Cys Leu Pro Tyr Gly Arg Leu Ala Tyr His Leu Ala Val Val Leu Gly
305                 310                 315                 320

Ser Ala Ala Asn Pro Leu Ala Cys Phe Leu Ala Met Gly Val Leu Cys
                325                 330                 335

Arg Ser Leu Ala Gly Leu Val Gly Leu Ser Leu Leu Gly Met Leu Phe
            340                 345                 350

Gly Ala Tyr Leu Met Ala Leu Ala Ile Leu Ser Pro Cys Pro Pro Leu
        355                 360                 365

Val Gly Thr Thr Ala Gly Val Val Leu Val Val Leu Ser Trp Val Leu
    370                 375                 380

Cys Leu Cys Val Phe Ser Tyr Val Lys Val Ala Ala Ser Ser Leu Leu
385                 390                 395                 400

His Gly Gly Gly Arg Pro Ala Leu Leu Ala Ala Gly Val Ala Ile Gln
                405                 410                 415

Val Gly Ser Leu Leu Gly Ala Gly Ala Met Phe Pro Pro Thr Ser Ile
            420                 425                 430

Tyr His Val Phe Gln Ser Arg Lys Asp Cys Val Asp Pro Cys Gly Pro
        435                 440                 445
```

<210> 15
<211> 1347
<212> DNA
<213> Baboon

<400> 15

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cttccagagg gttggagcct cccctcatac ctctctgtgg ttgtggcact gggaaacctg    180
ggtctgctgg tggtgactct gtggaggcgg ctggccccgg gcaagggcga gcgggtcccc    240
atccaggtgg tacaggtgct gagtgtagtg ggcacagccc tgctggcccc tctgtggcac    300
cacgtggccc cagtggcagg gcaactccac tccgtggcct tcctaacact ggccttagtg    360
ttggcactgg cctgctgtac ctctaatgtc actttcctgc ccttcctgag ccacctgcca    420
cctcctttct tacggtcttt cttcctgggt cagggtctca gtgccctgct cccctgtgtg    480
ctagccctag tgcagggtgt aggccgcctc gagtgctcgc cagcgcccac caatggcacc    540
tcagggcctc ccctcaactt ccctgagcgt tttcctgcca gcaccttcta ctgggcactg    600
actgcccttc tggtcacttc ggctgccgcc ttccagggtc tcctgttgct gttgccatca    660
ctaccatctg taaccacagg gggcgcaggg cctgaacttc cactgggatc cccaggagca    720
gaggaggaag agaaggagga agaagaggct ttgccattgc aggagccacc aagccaggca    780
gcaggcacca tccctggccc agaccctgag gcccatcagc tgttctcagc ccatggtgcc    840
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```
ttcctgctgg gcctgctggc catcaccagt gccctgacca atggcgtgct gcctgccgtg    900
cagagctttt cctgtttgcc ctatgggcgc ttggcctacc acctggctgt ggtgctgggc    960
agtgccgcca acccccttgc ctgcttcctg gccatgggcg tgctgtgcag gtccctggca   1020
gggctggttg gtctttctct gctgggcatg ctctttgggg cctacctgat ggtactggca   1080
atcctgagcc cctgcccacc cctggtgggc accaccgcag gggtggtcct tgtggtactg   1140
tcgtgggtgc tgtgtctttg tgtgttctca tacgtgaagg tggctgcaag ctccctgctg   1200
catggtgggg gtcggccggc attgctggcg gctggtgtgg ccatccagat gggctccctg   1260
cttggtgccg gcaccatgtt ccctcctacc agcatctacc acgtgtttca aagcagaaag   1320
gactgtgtag acccctgtgg cccctga                                       1347
```

<210> 16
<211> 448
<212> PRT
<213> Baboon

<400> 16

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Met Ala Ala Pro Thr Leu Gly His Leu Val Leu Thr His Leu Leu Val
1               5                  10                  15

Ala Leu Leu Gly Met Gly Ser Trp Ala Ala Val Asn Gly Ile Trp Val
            20                  25                  30

Glu Leu Pro Val Val Val Lys His Leu Pro Glu Gly Trp Ser Leu Pro
        35                  40                  45

Ser Tyr Leu Ser Val Val Val Ala Leu Gly Asn Leu Gly Leu Leu Val
    50                  55                  60

Val Thr Leu Trp Arg Arg Leu Ala Pro Gly Lys Gly Glu Arg Val Pro
65                  70                  75                  80

Ile Gln Val Val Gln Val Leu Ser Val Val Gly Thr Ala Leu Leu Ala
                85                  90                  95

Pro Leu Trp His His Val Ala Pro Val Ala Gly Gln Leu His Ser Val
            100                 105                 110

Ala Phe Leu Thr Leu Ala Leu Val Leu Ala Leu Ala Cys Cys Thr Ser
        115                 120                 125

Asn Val Thr Phe Leu Pro Phe Leu Ser His Leu Pro Pro Pro Phe Leu
    130                 135                 140

Arg Ser Phe Phe Leu Gly Gln Gly Leu Ser Ala Leu Leu Pro Cys Val
145                 150                 155                 160

Leu Ala Leu Val Gln Gly Val Gly Arg Leu Glu Cys Ser Pro Ala Pro
                165                 170                 175

Thr Asn Gly Thr Ser Gly Pro Pro Leu Asn Phe Pro Glu Arg Phe Pro
            180                 185                 190

Ala Ser Thr Phe Tyr Trp Ala Leu Thr Ala Leu Leu Val Thr Ser Ala
        195                 200                 205

Ala Ala Phe Gln Gly Leu Leu Leu Leu Leu Pro Ser Leu Pro Ser Val
    210                 215                 220
```

```
Thr Thr Gly Gly Ala Gly Pro Glu Leu Pro Leu Gly Ser Pro Gly Ala
225                 230                 235                 240

Glu Glu Glu Glu Lys Glu Glu Glu Glu Ala Leu Pro Leu Gln Glu Pro
                245                 250                 255

Pro Ser Gln Ala Ala Gly Thr Ile Pro Gly Pro Asp Pro Glu Ala His
            260                 265                 270

Gln Leu Phe Ser Ala His Gly Ala Phe Leu Leu Gly Leu Leu Ala Ile
        275                 280                 285

Thr Ser Ala Leu Thr Asn Gly Val Leu Pro Ala Val Gln Ser Phe Ser
    290                 295                 300

Cys Leu Pro Tyr Gly Arg Leu Ala Tyr His Leu Ala Val Val Leu Gly
305                 310                 315                 320

Ser Ala Ala Asn Pro Leu Ala Cys Phe Leu Ala Met Gly Val Leu Cys
                325                 330                 335

Arg Ser Leu Ala Gly Leu Val Gly Leu Ser Leu Leu Gly Met Leu Phe
            340                 345                 350

Gly Ala Tyr Leu Met Val Leu Ala Ile Leu Ser Pro Cys Pro Pro Leu
        355                 360                 365

Val Gly Thr Thr Ala Gly Val Val Leu Val Val Leu Ser Trp Val Leu
    370                 375                 380

Cys Leu Cys Val Phe Ser Tyr Val Lys Val Ala Ala Ser Ser Leu Leu
385                 390                 395                 400

His Gly Gly Gly Arg Pro Ala Leu Leu Ala Ala Gly Val Ala Ile Gln
                405                 410                 415

Met Gly Ser Leu Leu Gly Ala Gly Thr Met Phe Pro Pro Thr Ser Ile
            420                 425                 430

Tyr His Val Phe Gln Ser Arg Lys Asp Cys Val Asp Pro Cys Gly Pro
        435                 440                 445
```

<210> 17
<211> 445
<212> PRT
<213> Artificial

<220>
<223> Consensus sequence of SEQ ID NO: 12, 14 and 16.

<400> 17

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Met Ala Ala Pro Thr Leu Gly Arg Leu Val Leu Thr His Leu Leu Val
1               5                   10                  15

Ala Leu Phe Gly Met Gly Ser Trp Ala Ala Val Asn Gly Ile Trp Val
            20                  25                  30
```

```
Glu Leu Pro Val Val Val Lys Leu Pro Glu Gly Trp Ser Leu Pro Ser
        35                  40                  45

Tyr Leu Ser Val Val Val Ala Leu Gly Asn Leu Gly Leu Leu Val Val
    50                  55                  60

Thr Leu Trp Arg Arg Leu Ala Pro Gly Lys Gly Glu Gln Val Pro Ile
65                  70                  75                  80

Gln Val Val Gln Val Leu Ser Val Val Gly Thr Ala Leu Leu Ala Pro
                85                  90                  95

Leu Trp His His Val Ala Pro Val Ala Gly Gln Leu His Ser Val Ala
            100                 105                 110

Phe Leu Thr Leu Ala Leu Val Leu Ala Leu Ala Cys Cys Thr Ser Asn
        115                 120                 125

Val Thr Phe Leu Pro Phe Leu Ser His Leu Pro Pro Pro Phe Leu Arg
    130                 135                 140

Ser Phe Phe Leu Gly Gln Gly Leu Ser Ala Leu Leu Pro Cys Val Leu
145                 150                 155                 160

Ala Leu Val Gln Gly Val Gly Arg Leu Glu Cys Pro Pro Ala Pro Thr
                165                 170                 175

Asn Gly Thr Ser Gly Pro Pro Leu Asp Phe Pro Glu Arg Phe Pro Ala
            180                 185                 190

Ser Thr Phe Phe Trp Ala Leu Thr Ala Leu Leu Val Thr Ser Ala Ala
        195                 200                 205

Ala Phe Gln Gly Leu Leu Leu Leu Leu Pro Ser Leu Pro Ser Val Thr
    210                 215                 220

Thr Gly Gly Gly Pro Glu Leu Gln Leu Gly Ser Pro Gly Ala Glu Glu
225                 230                 235                 240

Glu Glu Lys Glu Glu Glu Glu Ala Leu Pro Leu Gln Glu Pro Pro Ser
                245                 250                 255

Gln Ala Ala Gly Thr Ile Pro Gly Pro Asp Pro Glu Ala His Gln Leu
            260                 265                 270

Phe Ser Ala His Gly Ala Phe Leu Leu Gly Leu Leu Ala Thr Ser Ala
        275                 280                 285

Leu Thr Asn Gly Val Leu Pro Ala Val Gln Ser Phe Ser Cys Leu Pro
    290                 295                 300

Tyr Gly Arg Leu Ala Tyr His Leu Ala Val Val Leu Gly Ser Ala Ala
305                 310                 315                 320

Asn Pro Leu Ala Cys Phe Leu Ala Met Gly Val Leu Cys Arg Ser Leu
                325                 330                 335
```

Ala Gly Leu Val Gly Leu Ser Leu Leu Gly Met Leu Phe Gly Ala Tyr
340 345 350

Leu Met Ala Leu Ala Ile Leu Ser Pro Cys Pro Pro Leu Val Gly Thr
355 360 365

Thr Ala Gly Val Val Leu Val Val Leu Ser Trp Val Leu Cys Leu Cys
370 375 380

Val Phe Ser Tyr Val Lys Val Ala Ala Ser Ser Leu Leu His Gly Gly
385 390 395 400

Gly Arg Pro Ala Leu Leu Ala Ala Gly Val Ala Ile Gln Val Gly Ser
405 410 415

Leu Leu Gly Ala Gly Ala Met Phe Pro Pro Thr Ser Ile Tyr His Val
420 425 430

Phe Gln Ser Arg Lys Asp Cys Val Asp Pro Cys Gly Pro
435 440 445

<210> 18
<211> 19
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 18
cccagtggca ggacagttg 19

<210> 19
<211> 16
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 19
tcagcgcgtt ggtggc 16

<210> 20
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 20
gtkaccttyg cyykwcctgg 20

<210> 21
<211> 19
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 21
ggagykgggt ccccacctg 19

<210> 22
<211> 17
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 22
aatggcagca ccymcgc 17

<210> 23
<211> 18
<212> DNA
<213> Artificial

<220>
<223> PCR Primer Oligonucleotide

<400> 23
tcaggggcca caggggtc 18